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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/877,576	06/08/2001	Michael A. O'Connor	5181-72700	4215

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EXAMINER
EDELMAN, BRADLEY E

ART UNIT	PAPER NUMBER
2153	

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DATE MAILED: 05/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/877,576	O'CONNOR	
	Examiner	Art Unit	
	Bradley Edelman	2153	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 February 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *04 February 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

This Office action is in response to Applicant's amendments as request for reconsideration filed on February 4, 2005. Claims 1-27 are presented for examination.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

1. Claims 17-23 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. These claims are directed to a "computer readable medium." However, according to the specification, which defines a carrier medium but not a computer readable medium, the carrier medium may consist of an electrical, electromagnetic, or other signal (see p. 17, line 25 – p. 18, line 3). The substitution of the words "computer readable" for the word "carrier" in the claims still does not avoid the possibility that the claimed "medium" is a signal. Because a "signal" does not fall within the allowed statutory categories of a process, machine, manufacture, or composition of matter, the claims are still directed toward non-statutory subject matter. To avoid this problem, upon submission of an RCE or during any further prosecution of this application, a phrase such as "recordable computer readable medium" or "tangible computer readable medium" should be used.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 3-4, 7-9, 12-13, 16, 19, 20, 23, and 26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In considering these claims, note that Examiner previously rejected the claims as including the terms "mounting" and "unmounting" which were ambiguous. Applicant has attempted to cure this problem by inserting the phrase "wherein mounting said first storage comprises enabling access to the first storage, and wherein unmounting said first storage comprises disabling access to the first storage" (see claims 3, 12, 19, and 26). Nonetheless, this language is still ambiguous. Note that there is no antecedent basis for "unmounting said first storage" as claimed in the amended claims (see, e.g., claim 3, lines 5-7). Instead, the claim describes unmounting a *first host* from a first storage. Claims 12, 19, and 26 suffer from the same problem.

Claims 4, 7-9, 13, 16, 20, and 23 depend from claims 3, 12, and 19 and are thus rejected for the same reasons.

Claim 9 is additionally ambiguous because it describes "remaining logical units" but fails to supply antecedent basis for these "logical units."

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –

> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 6, 10, 15, 17, 22, 24, and 27 are rejected under 35 U.S.C. 102(e) as being anticipated by Araki et al. (U.S. Patent No. 6,567,865, hereinafter "Araki").

In considering claim 1, Araki discloses a method of allocating storage in a computer network (Fig. 1), said method comprising:

Initiating a storage re-allocation procedure in said computer network, wherein the re-allocation procedure is configured to re-allocate a first storage from a first host in said computer network to a second host in said computer network; determining whether I/O corresponding to said first storage is in progress, in response to detecting said re-allocation procedure has been initiated; and halting said re-allocation procedure in response to determining I/O corresponding to said first storage is in progress (col. 4, lines 23-27, 33-35; col. 5, lines 55-65, wherein a second host initiates re-allocation of the storage by making an I/O request for the storage, and in response to detecting that the second host has made the request, the system determines if overlapping portions of the storage are currently in use by another process (which could be the other host processor as shown in Fig. 1) and forces the requesting host "to wait" if access if the other process (i.e. the first host processor) is "currently executing" its own I/O access of the storage).

In considering claim 6, Araki further discloses that determining whether I/O corresponding the first storage is in progress comprises utilizing system commands to determine whether any processes have reads or writes in progress to said first storage (col. 4, lines 4-8, "read/write data operation").

Claims 10, 17, and 24 present a computer network, computer readable medium, and computing node for carrying out the same steps described in the method of claim 1, and are thus rejected for the same reasons.

Claims 15 and 22 present a computer network and computer medium for performing the same steps described in the method of claim 6, and are thus rejected for the same reasons.

In considering claim 27, Araki further discloses that the re-allocation mechanism comprises a processor executing operating system software, and wherein said re-allocation procedure comprises a native function of said operating system (inclusion of an operating system software running native functions are both inherently necessary in the Araki system).

4. Claims 1, 5, 6, 10, 14, 15, 17, 21, 22, 24, and 27 are rejected under 35 U.S.C. 102(e) as being anticipated by Wolff (U.S. Patent No. 6,044,367).

In considering claim 1, Wolff discloses as prior art a method of allocating storage in a computer network ("network"), said method comprising:

Initiating a storage re-allocation procedure in said computer network, wherein the re-allocation procedure is configured to re-allocate a first storage from a first host in said computer network to a second host in said computer network; determining whether I/O corresponding to said first storage is in progress, in response to detecting said re-allocation procedure has been initiated; and halting said re-allocation procedure in response to determining I/O corresponding to said first storage is in progress (col. 1, lines 56-65, wherein clients initiate re-allocation procedures by "mak[ing] I/O requests directed to a particular resource on the network"; in response the initiation, the system determines if other I/O requests are in the queue and are being serviced; and if other I/O requests are being serviced, then re-allocation halts until the request reaches the front of the queue and all previous I/O requests are complete).

In considering claim 5, Wolff further discloses that the first host and the second host utilize incompatible file systems (col. 1, lines 47-50, "heterogeneous computing environments"), and wherein the computer network is a storage area network (the server stores files).

In considering claim 6, Wolff further discloses that determining whether I/O corresponding the first storage is in progress comprises utilizing system commands to

determine whether any processes have reads or writes in progress to said first storage (I/O requests for files are necessarily read or write requests).

Claims 10, 17, and 24 present a computer network, computer readable medium, and computing node for carrying out the same steps described in the method of claim 1, and are thus rejected for the same reasons.

In considering claim 14, Wolff further discloses that the first host and the second host utilize incompatible file systems (col. 1, lines 47-50), and wherein said first storage is re-allocated from said first host to said second host (i.e. when the second client's request reaches the front of the queue).

Claims 15 and 22 present a computer network and computer readable medium for performing the same steps described in the method of claim 6, and are thus rejected for the same reasons.

Claim 21 presents a computer readable medium, performing the same steps described in the method of claim 5, and is thus rejected for the same reason.

In considering claim 27, Wolff further discloses that the re-allocation mechanism comprises a processor executing operating system software, and wherein said re-

allocation procedure comprises a native function of said operating system (i.e. it works for heterogeneous computing environments).

5. Claims 1, 2, 6, 10, 11, 15, 17, 18, 22, 24, 25, and 27 are rejected under 35 U.S.C. 102(e) as being anticipated by DeKoning et al. (U.S. Patent No. 6,657,268, hereinafter "DeKoning").

In considering claim 1, DeKoning discloses a method of allocating storage in a computer network, said method comprising:

Initiating a storage re-allocation procedure in said computer network, wherein the re-allocation procedure is configured to re-allocate a first storage from a first host in said computer network to a second host in said computer network (col. 7, lines 1-10, wherein the host device 104 makes a data access request);

Determining whether I/O corresponding to said first storage is in progress, in response to detecting said re-allocation procedure has been initiated; and halting said re-allocation procedure in response to detecting I/O corresponding to said first storage is in progress (col. 6, lines 29-40; col. 7, lines 28-31, 39-43, wherein in response to the access request, the system determines if the storage is currently being accessed by another host, and the access request is denied if the other host is accessing the storage).

In considering claim 2, DeKoning further discloses:

providing an indication to a user said reallocation procedure is halted in response to said halting (col. 7, lines 32-34, "error message" is sent to the requesting host);

detecting said I/O is complete and no further I/O corresponding to said first storage is in progress (col. 7, lines 55-58; col. 11, lines 18-22, wherein if the first host is no longer accessing the storage and the "sticky" period is expired, the second storage may access the storage); and

providing an indication to a user that no I/O corresponding to said first storage is in progress, in response to said detecting (col. 11, lines 31-35, "the other host devices are informed... upon ownership transfer").

In considering claim 6, DeKoning further discloses that determining whether I/O corresponding the first storage is in progress comprises utilizing system commands to determine whether any processes have reads or writes in progress to said first storage (I/O accesses to the storage will necessarily read or write to the storage).

Claims 10, 17, and 24 present a computer network, computer readable medium, and computing node for carrying out the same steps described in the method of claim 1, and are thus rejected for the same reasons.

Claims 11, 18, and 25 present a computer network, computer readable medium, and computing node for carrying out the same steps described in the method of claim 2, and are thus rejected for the same reasons.

Claims 15 and 22 present a computer network and computer readable medium for performing the same steps described in the method of claim 6, and are thus rejected for the same reasons.

In considering claim 27, DeKoning further discloses that the re-allocation mechanism comprises a processor executing operating system software, and wherein said re-allocation procedure comprises a native function of said operating system (it must necessarily be a native function of the operating system in order to work).

6. Claims 3, 4, 7, 8, 12, 13, 16, 19, 20, 23, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wolff.

In considering claims 3, 12, 19, and 26, Examiner has interpreted the claim to mean the following:

Disabling access rights of the first host from the first storage, and configuring the first host to bypass enabling access to the first storage upon a subsequent reboot; and

Completing the re-allocation procedure.

In view of this interpretation, Wolff further discloses completing the re-allocation procedure (col. 2, lines 60-65, wherein upon reaching the front of the queue, re-allocation of the storage to the requesting host occurs). In addition, in a later portion of the Wolff reference, Wolff discloses disabling access rights of a first host from the first storage, and configuring the first host to bypass enabling access to the first storage

upon a subsequent reboot (see, e.g. col. 54, lines 37-58, describing maintaining an access table at the storage, wherein the access table can be changed and wherein the access table describes access rights and privileges that are mounted upon system start-up; see more generally, cols. 53 and 54). It would have been obvious to include these features in the prior art system of Wolff taught in col. 2, so that the system can be customized to provide certain hosts to have specific access rights and can be altered to change those access rights.

Claims 4, 13, and 20 all describe unmounting (i.e. disabling access rights of) a third host from the first storage and configuring the third host to bypass mounting upon subsequent reboot, in response to detecting said third host is mounted for access on said first storage. This feature is described in cols. 53 and 54 of Wolff (note, the system of Wolff is for a plurality of clients, which would permit the same mounting and unmounting described in cols. 53 and 54 for all of the clients, including at least a third client). It would have been obvious to include the unmounting and bypassing of mounting upon bootup of a third host in Wolff so that all hosts' access can be controlled in the system.

Claim 7 and 23 describe editing a table to change the bypass mounting. This is further described by Wolff ("access control table," col. 54, lines 37-58).

Claims 8 and 16 describe backing up the first storage prior to completing the re-allocation procedure. Wolff further describes the use of back-up storage volumes (col. 21, lines 20-33). Given this knowledge, it would have been obvious to back up the first storage taught by Wolff prior to completing the re-allocation procedure, to provide an extra copy of the information in case it was corrupted or lost.

Response to Arguments

Applicant's arguments filed on February 4, 2005 have been fully considered but they are not persuasive. Applicant has argued the following points:

a. Applicant's amendments to claims 17-23 have overcome the 35 U.S.C. § 101 rejections.

b. Applicant's amendments to claims 3, 12, 19, and 26 have overcome the 35 U.S.C. § 112 rejections.

c. Claims 1, 10, 17, and 24, as amended overcome the 35 U.S.C. 102(e) rejection in view of Araki.

d. Claims 1, 10, 17, and 24, as amended overcome the 35 U.S.C. 102(e) rejection in view of Wolff.

e. Claims 1, 10, 17, and 24, as amended overcome the 35 U.S.C. 102(e) rejection in view of DeKoning.

In considering (a), Applicant contends that the amendments to claims 17-23 have overcome the 35 U.S.C. § 101 rejections. Examiner respectfully disagrees. As stated

in the claim rejection above, the substitution of the words "computer readable" for the word "carrier" in the claims still does not avoid the possibility that the claimed "medium" is a signal. Because a "signal" does not fall within the allowed statutory categories of a process, machine, manufacture, or composition of matter, the claims are still directed toward non-statutory subject matter.

In considering (b), Applicant contends that the amendments to claims 3, 12, 19, and 26 have overcome the 35 U.S.C. § 112 rejections. Examiner agrees and has withdrawn those rejections accordingly.

In considering (c), Applicant contends that claims 1, 10, 17, and 24, as amended overcome the 35 U.S.C. 102(e) rejection in view of Araki. Examiner respectfully disagrees. Col. 4, lines 23-27, 33-35 and col. 5, lines 55-65 of Araki disclose that a second host initiates re-allocation of a storage by making an I/O request for the storage, and in response to detecting that the second host has made the request, the system determines if overlapping portions of the storage are currently in use by another process (which could be the other host processor as shown in Fig. 1) and forces the requesting host "to wait" if access if the other process (i.e. the first host processor) is "currently executing" its own I/O access of the storage. Applicant has argued that "Araki discloses controlling access to a shared resource based upon whether or not the accesses are directed to overlapping extents" (see Applicant's response, p. 13, first full paragraph). Thus, Applicant argues that Araki is directed to a different problem. Examiner

respectfully disagrees with this argument. The claims do not specify the details of the I/O that is in progress, and do not specify anything relating to whether only portions or entire blocks of the storage is being accessed. They only describe "determining whether I/O... is in progress." This feature is disclosed by Araki.

In considering (d), Applicant contends that claims 1, 10, 17, and 24, as amended overcome the 35 U.S.C. 102(e) rejection in view of Wolff. Examiner respectfully disagrees. Col. 1, lines 56-65 of Wolff discloses that clients initiate re-allocation procedures by "mak[ing] I/O requests directed to a particular resource on the network"; then in response the initiation, the system determines if other I/O requests are in the queue and are being serviced; and if other I/O requests are being serviced, and then re-allocation halts until the request reaches the front of the queue and all previous I/O requests are complete. This reads on the claim language, as described in the claim rejections above.

In considering (e), Applicant contends that claims 1, 10, 17, and 24, as amended overcome the 35 U.S.C. 102(e) rejection in view of DeKoning. Examiner respectfully disagrees. Applicant essentially argues that (1) "the mere transfer of ownership between controllers, which may occur regularly and repeatedly, disclosed in [De]Koning is not equivalent to re-allocating storage as claimed" (see arguments, p. 15, last line – p. 16, line 2), and that (2) DeKoning "makes a transfer decision based upon a determination as to whether a sufficient period of time has passed and/or whether or not

the network topology indicates a host may lose access in the event of a transfer" (see arguments, p. 16, lines 5-7). Examiner respectfully disagrees.

Regarding point (1), DeKoning does not disclose a mere transfer of ownership. Instead, DeKoning discloses I/O requests made to storage, wherein "ownership" refers to taking control of the storage while processing the data access request (see col. 6, lines 29-39; col. 7, lines 11-15). Thus, the ownership features of DeKoning are the same as the I/O being "in progress" as claimed. Regarding point (2), note that claims 1, 10, 17, and 24 do not discuss the transfer of access to the storage – they merely discuss preventing access by a particular host. Thus, the transfer process described by DeKoning is not relevant to the claims at issue.

For these reasons, Examiner maintains that the DeKoning reference anticipates at least claims 1, 10, 17, and 24.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bradley Edelman whose telephone number is 571-272-3953. The examiner can normally be reached from 9 a.m. to 5 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glen Burgess can be reached at 571-272-3949. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Bradley Edelman

BE
April 29, 2005